



Questions & Answers About EPA's Proposed NPDES Permit for Brayton Point Station and its Impact on New England's Electricity Supply July 2002

What impact will this permit have on the long-term reliability of electricity in New England?

The terms of EPA's proposed permit for Brayton Point Station should have little effect on the long-term adequacy of New England's power supply. When Brayton Point Station has completed the upgrades necessitated by the NPDES permit, the plant's three coal and one oil/gas units will continue to be capable of producing more than 1500 megawatts of electricity at full capacity.

In addition, because of the recent construction of new power plants in New England, the region's energy reliability outlook is stronger than it has been for many years. While certain transmission constraints remain a concern, particularly in southwestern Connecticut, electric power supplies are expected to be adequate to meet demand for the next few years. Since the New England states deregulated the wholesale electricity market in the late 1990s, the states and/or EPA have issued permits to 26 large gas-turbine utility projects with a total capacity of over 13,000 megawatts (or 50% of peak summertime demand in New England). Of these 26 permitted projects, thirteen are already commercially operational with a potential on-line capacity of nearly 5000 megawatts. Seven additional projects with a total projected capacity of 3812 megawatts are constructed and currently in a testing phase, and two more projects are under construction. In all, nearly 10,803 megawatts of power has already come on line, is in a testing phase, or is under construction. These new power plants are good for both energy reliability and the environment: they ensure that supply meets demand in coming years and they emit a fraction of the air pollutants compared to existing facilities, such as Brayton Point Station.

Brayton Point Station will likely meet the proposed permit conditions through construction of a closed-cycle cooling system for all four units. There will be marginal long-term losses in electricity production, roughly 3% of the plant's current capacity, as a result of the upgrades. A small amount of electricity generated by the plant will need to be used to run the fans and pumps utilized in a mechanical draft cooling tower. In addition, the switch from open-cycle cooling to closed-cycle cooling will result in a very small decrease in the plant's generating capacity. But these marginal losses in electricity production can easily be replaced by the new, cleaner electricity capacity which has come on line in New England.

A closed-cycle cooling system at Brayton Point Station may actually increase electricity reliability at certain critical times. During peak demand periods (typically on the hottest days of the summer), the new upgrades may result in additional availability of electricity. Under its current permit, Brayton Point Station must at times curtail its generation during peak demand periods in order to ensure that it does not violate the permit's thermal discharge conditions. Once the new upgrades are installed, no such curtailments during peak demand periods will be necessary.

Will the construction of a new cooling system necessitate the temporary shutting down of generation units at Brayton Point Station? If so, will these unit outages affect the short-term reliability of electricity in New England?

Brayton Point Station will likely meet the proposed permit conditions through the construction of a

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closed-cycle water cooling system at Brayton Point Station, which will necessitate the temporary closure of each of the four units at Brayton Point. In all, EPA estimates that each unit will need to be closed for approximately three months (beyond the regular one month maintenance outage for each unit).

These temporary unit outages will not affect the overall reliability of electricity in New England. The unit outages can be phased over the construction period, which is expected to take nearly four years, and can be scheduled to avoid peak energy demand seasons. Unit outages at power plants occur regularly and the New England Independent System Operator (ISO-NE), the operator of the electricity supply grid in New England, has managed both planned and unplanned outages in the past without major supply difficulties for the region. EPA will work with the ISO-NE and PG&E to devise a construction schedule that minimizes the risk that outages would negatively impact New England's energy supply.

Will EPA New England be requiring all water-cooled power plants in New England to switch to closed-cycle cooling? If so, will the cumulative outages required by all this construction impact New England's energy reliability?

The proposed decision to require closed-cycle cooling at Brayton Point Station is founded upon the specific circumstances of the plant and its impact on aquatic life in Mount Hope Bay. The permitting decisions for other plants will similarly turn on their specific facts. EPA's proposed permit for Brayton Point Station does not mean that all future permits will require closed-cycle cooling. Indeed, EPA recently issued NPDES permits to the Mystic Power Station and the Seabrook Nuclear Power Plant which did not require closed-cycle cooling.

Will Brayton Point Station be forced to shut-down due to the cost of complying with the permit?

No. While the future operation of the plant is in the hands of its owner Pacific Gas and Electric - National Energy Group, Brayton Point Station will continue to be able to generate electricity at costs below those of many other operating plants in New England. Brayton Point will continue to be one of only a dozen or so coal-fired plants in New England. Because coal is a cheaper fuel than most other forms of fuel, these plants are a very competitive source of electricity in today's deregulated electricity markets. EPA therefore believes that Brayton Point Station will continue operating as a highly profitable power plant.

Will the diversity of New England's fuel supply for electricity generation be adversely impacted by this decision?

No, the cooling system upgrades at Brayton Point Station will have no effect on the diversity of fuels used in New England's energy supply. Brayton Point Station can continue to burn coal and oil with the new, improved cooling system.

What impact will EPA's proposed permit have on consumer rates paid for electricity in New England?

There will be little impact on the rates consumers pay for electricity. Even after its upgrades, Brayton Point Station will continue to produce electricity at a cost significantly below the typical price paid in the ISO-NE's hourly energy market. Because of the competitive nature of the deregulated energy market, for most periods of the year, Brayton Point's increased operational costs will not be passed on to consumers.

The ISO-NE hourly energy market provides the principal mechanism by which Brayton Point Station's operating economics might affect New England consumer rates. In this hourly market, wholesale energy

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suppliers, such as Brayton Point, place bids for each hour of the next day. Starting with the lowest bid, ISO-NE accepts bids until the total demand for that hour is met. The highest bid price that is accepted for an hour sets the price for all the market transactions occurring in that hour. That price is known as the Energy Clearing Price or ECP. Because of its low operating costs, during most hours of the year, Brayton Point will not set the ECP.

However, there are two ways in which the proposed permit may affect the setting of the ECP. First, during the period that Brayton Point Station's generating units are removed from service during construction, the temporary unavailability of the units may result in the periodic need for some additional higher-priced power to meet demand. This would increase the ECP during those temporary periods. Second, Brayton Point Station's bids may be higher based on increased production costs. During those off-peak hours in which Brayton Point Station's bids might set the ECP, the ECP would consequently be higher. However, any impact on prices will be moderated by several factors: 1) ISO-NE's careful management of outages to occur during non-peak months; 2) the current caps on consumer price increases under the states' deregulation requirements; and 3) the fact that the ISO-NE hourly market only impacts about 25% of the total electricity market in New England, with the market transactions for the remaining 75% of electricity remaining largely unaffected by changes in cost at Brayton Point Station.

Using conservative (i.e., worst case) assumptions, the average household would see long-term monthly increases of between \$0.03 to \$0.13 in electricity rates as a result of the construction of a closed-cycle cooling system. The short-term impacts of unit outages during the construction period could result in an additional \$4.70 total for a nine-month period, or roughly \$0.52 per month.

In order to meet air pollution emission standards in a new state regulation, Brayton Point Station must install new air pollution control equipment. Will the combined expense of these air requirements and EPA's proposed NPDES permit result in significant price increases for New England consumers?

No. Even the combined costs of new air and water pollution upgrades are not expected to result in significant cost increases for consumers. Using conservative (i.e., worst case) assumptions, the combined impact of the air and water pollution upgrades at Brayton Point Station would only result in long-term monthly increases of between \$.09 and \$0.38 for the average household. Because the installation of the new air pollution control equipment is not expected to result in any additional unit outages, the air pollution control equipment should not cause any additional short-term increases in rates during the construction period. Brayton Point Station should be able to tie in the air pollution control equipment during its regularly scheduled maintenance outages.

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